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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,204	07/31/2000	Kamran Uz Zaman	690-009312-US(PAR)D/99836	5766

7590
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06/19/2003

EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/629,204

Applicant(s)

ZAMAN ET AL.

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 08 November 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 6, 8, 9, 11, 18-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. (US Patent 6487307) in view of DeYong et al. (WO 99/16010), Herbert et al. (US Patent 5,352,329), and Kanno et al. (US Patent 6069971).
2. With regards to claims 1, 11, and 20, Hennessey et al. discloses a system and method for inspecting manufactured objects comprising an illumination source with an optical sensor to obtain gray level picture data (col. 2, lines 60-67).

However, Hennessey et al. does not disclose a controller determining the ratio of distinguishable pixels to the total number of pixels with a threshold detector or discriminator to sense bottom edge wipe defects on an OPC device leading to classifying.

DeYong et al. teaches inspecting objects for defects with an optical system or method (Page 1, lines 4-10). Herbert et al. teaches inspecting OPC devices for bottom edge wipe defects (col. 1 to col. 2, line 11). Kanno et al. teaches a controller determining the ratio of distinguishable pixels to the total number of pixels (col. 8, line 50, to col. 9, line 2) with a

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threshold detector or discriminator (col. 9, lines 3-23) leading to classifying (Fig. 8, "ST109", "ST110", and "ST111").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to inspect objects for defects with an optical system of method as taught by DeYong et al. with the system and method of Hennessey et al., since one would be motivated to have automated inspection of manufactured products to fill a need for inherent inefficiency of human inspectors caused, in part, by an inability to maintain a continuous force and to apply a consistent analysis from day to day as implied from DeYong et al. (Page 1, lines 10-15).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to inspect OPC devices for bottom edge wipe defects as taught by Herbert et al. with the system and method of Hennessey et al., since one would be motivated to make sure that the bottom edge wipe methods are successful and reduce defects that may cause problems such as interference with charging devices or developer housing as implied from Herbert et al. (col. 1, lines 30-40, and col. 2, lines 1-11).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the ratio and threshold detector leading to classifying of Kanno et al. with the system and method of Hennessey et al., since one would be motivated to use these components to ensure that a product is within tolerable levels of quality as implied from Kanno et al. (col. 9, lines 3-23) and to improve work efficiency as implied from Kanno et al. (col. 9, lines 3-23) by having the designer further look at quasi-acceptable objects only rather than all objects that are not acceptable.

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3. With regards to claim 6, Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system as recited above.

However, Hennessey et al. does not disclose a data storage area to store threshold values and classification result.

Kanno et al. teaches a data storage area (Fig. 6) to store threshold values (col. 8, lines 50-60) and classification result (Fig. 8, "ST109", "ST110", and "ST111").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the data storage area of Kanno et al. with the suggested system of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use this components to ensure that a product is within tolerable levels of quality as implied from Kanno et al. (col. 9, lines 3-23) and to improve work efficiency as implied from Kanno et al. (col. 9, lines 3-23) by having the designer further look at quasi-acceptable objects only rather than all objects that are not acceptable.

4. With regards to claims 8 and 9, Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system as recited above.

However, Hennessey et al. does not disclose a monitoring device with a visual display.

Kanno et al. teaches a monitoring device with a visual display (Fig. 5, #2, and col. 7, lines 59-61).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the monitoring device of Kanno et al. with the suggested system of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be

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motivated to use this components to ensure that a product is within tolerable levels of quality as implied from Kanno et al. (col. 9, lines 3-23) and to improve work efficiency as implied from Kanno et al. (col. 9, lines 3-23) by having the designer further look at quasi-acceptable objects only rather than all objects that are not acceptable.

5. With regards to claims 18, 19, and 23, for purposes of being concise, Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a method as recited above.

However, Hennessey et al. does not disclose classifying by acceptable, non-acceptable, or quasi-acceptable.

Kanno et al. teaches classifying by acceptable, non-acceptable, or quasi-acceptable (Fig. 8, "ST109", "ST110", and "ST111").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the classifying of Kanno et al. with the suggested method of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use this components to ensure that a product is within tolerable levels of quality as implied from Kanno et al. (col. 9, lines 3-23) and to improve work efficiency as implied from Kanno et al. (col. 9, lines 3-23) by having the designer further look at quasi-acceptable objects only rather than all objects that are not acceptable.

6. With regards to claim 21, Hennessey et al. further discloses a visible light source (col. 3, lines 50-56).

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7. Claims 2-5, 12, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claims 1, 11, and 20 above, and further in view of Roy et al. (US patent 6118540).

Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system and method as recited above.

However, Hennessey et al. does not disclose a light emitting diode (LED), laser, emitter or CCD camera.

Roy et al. teaches an LED (col. 2, line 53), laser (col. 2, lines 60-64), emitter (col. 2, lines 60-64) or CCD camera (col. 2, lines 38).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the LED, laser, emitter, or CCD of Roy et al. with the suggested method and device of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since an LED, laser, emitter, or CCD are considered conventional in the art for inspection systems and methods as implied from Roy et al. One would be motivated to use these components to perform computer vision analysis as shown by Roy et al. (col. 2, lines 46-49).

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claim 1 above, and further in view of Juvinall (US Patent 4066363) and Maeda et al. (US Patent 5153444).

Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system as recited above.

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However, Hennessey et al. does not disclose a threshold detector comprising an array of pixels or a pixel counter.

Juvinall teaches a threshold detector comprising an array of pixels (col. 8, lines 22-25, and Fig. 1, #41). Maeda et al. teaches a pixel counter (col. 10, lines 5-35).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the threshold detector array of Juvinall with the suggested device of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use an array to process data from different pixels as implied from Juvinall (col. 8, lines 22-25) for parallel processing which is faster than serial processing.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the pixel counter of Maeda et al. with the suggested device of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use the counter to count the number of defective pixels to see if it reaches a preset value and indicates a defect as implied from Maeda et al. (col. 10, lines 27-50).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claim 8 above, and further in view of Langley (US Patent Application Publication 2001/0012392).

Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system as recited above.

However, Hennessey et al. does not disclose an audio monitor.

Langley teaches an audio monitor (Page 2, Paragraph 24).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the audio monitor of Langley with the suggested method and device of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use it to warn the user of defects as implied from Langley (Page 2, Paragraph 24).

10. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claim 11, and further in view of Lemmers et al. (US Patent 4641966).

Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a method as recited above.

However, Hennessey et al. does not disclose analog or digital signals.

Lemmers et al. implies analog (which is inherent before processing an electrical signal into a digital signal) and digital signals (col. 2, lines 30-35).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have analog or digital signals of Lemmers et al. with the suggested method of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since analog and digital signal processing is well known in the art as equivalent processing means for its use in the art of inspection devices. The selection of any of known equivalent to process signals would be within the level of ordinary skill in the art. Lastly, the applicant has not disclosed that analog or digital signals solves any stated problem and it appears that the invention would perform equally well either processing means. One would be motivated to use analog

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signals to have a real-time accuracy in signal detection. One would be motivated to use digital signals for more advanced processing applications.

11. Claim 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claim 11 above, and further in view of Maeda et al.

For purposes of being concise, Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a method as recited above.

However, Hennessey et al. does not disclose comparing with a gray pixel count.

Maeda et al. teaches comparing with a gray (Abstract, line 2) pixel count (col. 11, lines 34-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the pixel count of Maeda et al. with the suggested method of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use the count to determine defects as implied from Maeda et al. (col. 11, lines 34-41).

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. as applied to claim 11 above, and further in view of Juvinal.

Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al. suggests a system as recited above.

However, Hennessey et al. does not disclose comparing with a predetermined analog voltage level.

Juvinall teaches comparing with a predetermined analog voltage level (Fig. 5, #42, and col. 8, lines 55-69).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to compare with an analog voltage signal as taught by Juvinall with the suggested method of Hennessey et al. in view of DeYong et al., Herbert et al., and Kanno et al., since one would be motivated to use analog signals to control the levels of reference signals as implied from Juvinall (col. 8, lines 56-68), which may be done with a potentiometer.

Response to Arguments

13. Applicant's arguments filed 4/1/03 have been fully considered but they are not persuasive.

With regards to Kanno et al., in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "present invention deals with a population of whole pixels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

With regards to Juvinall, the array of pixels is seen in Figure 1, #32-35.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk
June 12, 2003



DAVID V. BRUCE
PRIMARY EXAMINER